JPRS 76970

10 December 1980

USSR Report

TRANSPORTATION

No. 28

FBIS FOREIGN BROADCAST INFORMATION SERVICE

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RAILROAD

SUB-STANDARD RAILROAD CARS

Moscow GUDOK in Russian 16 Sep 80 p 2

[Article by P. Losev, engineer: "Flaws...In Accordance with the Regulations"]

[Excerpt] During this past winter many stations of the South Urals Railroad were literally jam-packed with railroad cars which had been uncoupled from their trains because of commercial-type flaws. According to data which are far from complete, during 1979 this railroad received more than 41,000 cars with commercial flaws, including 24 percent from the Sverdlovsk Railroad and 17 percent from the Kuybyshev Railroad. Some 1,607 flatcars and gondola cars arrived with improperly fastened-down freight, and 7,363 with fastenings which were in violation of the regulations. In order to eliminate such defects--involving a basic shifting of the freight--3,268 cars were uncoupled. During the first half of this year more than 3 000 cars have been uncoupled on the South Urals Railroad in order to eliminate commercial flaws; of these some 25.8 percent arrived from the West Kazakhstan Railroad and 12 percent from the Kuybyshev Railroad.

Prolonged idle time spent by cars while waiting for commercial flaws to be eliminated, hundreds of persons and a considerable amount of equipment being utilized for re-loading, track being occupied, and increased possibilities for the freight to be tampered with--such are the consequences of the irresponsibility allowed by the shippers, by the grossly violated requirements of the Railroad Regulations. Moreover, this lack of responsibility is, to a large extent, the fault of the railroad people who accepted freight for hauling with violations of the established procedures.

But there are other, even more serious, non-production losses. As checkups have established, in most of the cars which were uncoupled because of commercial flaws the shifting of the freight and the violations with regard to its fastenings have led to damage to the doors, sides, and their bar locks, along with deformation and breakages in the metallic elements of their body frames. In order to eliminate these damages, a great deal of labor was expended, along with thousands of cubic meters of lumber and hundreds of tons of metal. Such repairs, which were done outdoors, were not always of high quality, and in a number of instances cars were merely patched up so that they could reach their places of destination.

Often the freight shifts were eliminated by prohibited methods (by impacting the freight with chock-type dropweights, pile drivers, or counterweights). As a result of this, beam ends, boards, pipes, and structural metal were damaged. At the same time the edges of the flatcars, the end doors, stands, cross stays, and tie beams of the gondola cars were also broken.

The workers in the freight and railroad-car administration of the South Urals Railroad could be blamed for all of this, but that would be not entirely justified. The mass nature of the commercial flaws and the danger of slowing down the operations of terminals and stations compelled them to have recourse to violations of the established technology for repairing cars and of the procedure for eliminating commercial flaws. These actions were compelled; they are secretly practiced on all railroads.

And so, losses from commercial flaws are great; they inflict enormous material damage on the state. Nevertheless, this evidently does not evoke the alarm which it ought to in the Ministry's Main Freight Administration, in the appropriate railroad services and division departments, since no radical measures have yet been taken. The struggle against these losses has been reduced to the formal compilation of account form KNO-5, which the railroads present to the Ministry once each quarter. Previously, by the way, this account used to be compiled on a monthly basis, and, to a certain extent, it was analyzed by the railroad's divisions. Nowadays it bypasses the divisions; their workers learn of the summary results "from above," from the freight services. What kind of analysis can we speak about if the account data are not furnished to the workers who should be analyzing them directly? Moreover, these materials are obviously delayed too much. The winter, for example, has passed, but the measures proceeding from the analysis, if the latter was even made, are specifically designed for the winter period; they are not suitable for the summer.... When matters stand this way, there can be no talk about serious demands being made on the workers on railroads which accept freight with a violation of the Specifications (TU): everything is forgotten....

The main trouble is the lack of a well-thought-out system for eliminating the causes which give rise to commercial flaws. Furthermore, the individual, generally well-known, and sufficiently studied reasons leading to mass uncouplings of cars with commercial deficiencies are simply ignored. Here is one of the most characteristic examples of such an attitude.

In Par. 7 of the Specifications the following is written: "Before loading the car floors, the freight-bearing surfaces, the linings, packings, blocks, and freight surfaces under the fastenings should be cleaned by the shipper from snow, ice, and dirt. In winter time the car floors and the packing surfaces in places where it comes into contact with the freight must be sprinkled by the shipper with a thin layer (1--2 mm) of clean, dry sand."

These requirements are completely justified; however, there are few who are guided by them, and essentially nobody monitors their execution. As a result, freight lies in the cars on whatever it chances to--on rails, reinforced-concrete panels, or remnants of other freight. Ice and snow are generally not taken into account. As a rule, they try not to think about the sand; they consider this mandatory requirement to be an exxagerated trifle. Nobody prepares it or sprinkles the car floors with it....

In January and February of this year a check-up on the causes leading to commercial flaws was organized at the Chelyabinsk Main Station. Of 100 cars uncoupled because of commercial deficiencies, in 61 with lumber, in four with reinforced-concrete panels, in three with sheet steel, and in one with rails the freight was placed on snow, ice, and on remnants of freight from which the cars had not been cleaned. No traces of sand were discovered on the car floors. The list of stations from which these cars were shipped out encompasses almost all the railroads, and this fact indicates the universality of the violations.

2384
CSO: 1829

RAILROAD

UNFULFILLED ELECTRIFICATION PLANS

Moscow GUDOK in Russian 24 Oct 80 p 2

/Article: "Overcome the Lag in Electrification!"/

/Text/ Reliable, efficient electric traction gained a firm place in transport long ago, and its area has continued to expand. In the 10th Five-Year Plan a decree of the CPSU Central Committee and the USSR Council of Ministers provided for the continuation of this work. Plans for 1979 and 1980 called for the electrification of from 1,200 to 1,300 kilometers.

In order to carry out the increased volume of work, the Ministry of Transport Construction should have earlier, in 1977 and 1978, trained staffs of electrification specialists, as well as preparing the machinery necessary for this operation. However, this was not done.

That is why, although in 1979 the plan was fulfilled with respect to number of kilometers put into use, this was done by means of the additional electrification by workers of the Sverdlovsk Railroad on the Druzhinino--Kuzino Section. But operations remained incomplete on the principal, very important Khabarovsk--Bira and Tselinograd--Ekibastuz lines. Only some of the trains were converted to electric traction at the Khabarovsk-2 and Ekibastuz-2 stations. This has seriously complicated operational work.

Why did it happen this way? First of all, it was affected by the manpower shortages in the construction subdivisions. Because of this, less than 10 percent of the projects were installed during the time periods established by the plan. The support towers and metal structural components were not installed on schedule. It turned out that the Transelektromontazh Trust did not have the necessary number of fitters. To be sure, in November-December by way of aid from the power-supply sections of the Ministry of Railways twice as many brigades were assigned as were in the electrification-installation trains of the Ministry of Transport Construction. But, naturally, this had a negative effect on operational work.

It would seem that the Ministry of Transport Construction should have drawn the appropriate conclusions from such a bitter experience. During the present year, however, the situation has not improved. On the contrary, it has become even more aggravated. By 1 June 1980 the assigned quotas with respect to installing contact networks had been fulfilled by 46 percent, by 1 August--by 55 percent, and by 1 October by only 57 percent. Installation work had still not been completed at such major stations as Irtyshsk, Voynovka, Losta, and a number of others. And over the course of these three quarters start-up projects had assimilated only 61.2 percent of the funds allocated for construction and installation operations.

In the fourth quarter more than 2,200 kilometers of contact network must be installed and about 500 adjusted. We need at least 250 brigades for this. The Transelektromontazh Trust does not have such an amount, nor will the Ministry of Railways be able to completely cover this deficit.

The situation is no better with regard to traction sub-stations. By 1 October only 13 out of 30 of them had been installed. Naturally, the following question arises: is the Ministry of Transport Construction capable of fulfilling during the culminating year of the five-year plan the task which has been assigned with regard to converting lines to electric traction?

In 1981 the volume of electrification work will be quite considerable. However, the work in progress, just as in past years, is being disrupted. As of 1 October only 30.3 percent had been completed. There are new problems ahead of us. In order to cope with them successfully, it is necessary to bring up to full strength the construction subdivisions which carry out the electrification, as well as the manpower and machinery for excavating the construction pits.

Plan discipline must be increased. We cannot put up with the disruptions in deadlines for installing sections which have been occurring regularly for a number of years now. The number of brigades working on the installation of contact networks must be increased to 150--160. It is also necessary to bring up to full strength the construction supervision points engaged in installing traction sub-stations. The Transelektromontazh Trust must add rail cars outfitted with equipment and others with suitable living facilities.

The railroads must increase the discipline of according "windows" [gaps], of unloading materials on schedule for construction and installation work and equipment, particularly for STsB (Signaling, Centralized Control, and Interlocking Apparatus) installations.

We should bear in mind that, in connection with the increased traffic every year, the possibilities for scheduling "windows" will decrease. Therefore, we must create a complex of machinery for installing the support towers and installing the contact network from the field. And the sooner this is done, the better.

Time flies!

23[illegible]4
CSO: 1829

RAILROAD

DELAYS IN TRANSPORTING AGRICULTURAL PRODUCTS

Sugar Beets

Moscow GUDOK in Russian 12 Oct 80 p 2

/Text/ During the first 10 days in October railroad workers ensured a high level in the transport of agricultural products. The total loading of grain, vegetables, fruit, and sugar beets exceeded 11,500 cars per day. The transport of sugar beets has been particularly complicated this year. The fact is that the time periods for its delivery from the growing areas to the processing points have been sharply curtailed.

The procurement agents and sugar-mill workers have no serious complaints against the railroads. Sugar beets are being shipped in excess of the plan on the Odessa, Kuybyshev, and Alma-Ata Railroads. But certain main lines do not furnish the necessary quantity of rolling stock. Thus, even with a high level of loading the Southern Railroad is under-fulfilling its assignment for sugar-beet delivery by 33 gondola cars a day, the Volga by 20, and the West Siberian by 21. Moreover, the chiefs of these main lines can and must eliminate breakdowns in providing the required number of gondola cars for loading the sugar-beet roots and are obligated to carry out their duties.

But the principal underloading still occurs because the procurement agents have reduced the amounts of sugar beets required to be submitted for transport. Particularly large lags are being permitted for this reason on the Southwestern Railroad, where there is a daily underloading by 248 gondola cars, as well as on the North Caucasus by 231, the Moscow by 85, the Belorussian by 74, and the Southwestern by 62. One must assume that in the next few days the requisitions for the transport of sugar beets will increase sharply. On 9 and 10 October they already exceeded the plan by more than 300 gondola cars a day. Large submittals of sugar beets for transport have already begun on the Southern Railroad--more than 1,000 cars as compared to the planned 902 and on the Lvov Railroad with 400 cars of a planned 341. There has been a noticeable increase in the demand for gondola cars by procurement agents on the Moscow Railroad and others.

It should also be borne in mind that the back areas of sugar-beet cultivation are now being strengthened for a more accelerated and increased transport of sugar beets. Equipment which has been operated to harvest the crop in the country's eastern regions is being transferred in large quantities. About 200 echelons with trucks are scheduled to arrive at the Lvov, Southeastern, Southern, Kuybyshev, Southwestern, and other railroads.

The largest shipment of this equipment--more than 150 echelons--must be carried out from the Virgin Lands Main Line. In order to solve this important problem, the Ministry has set up the special task of sending out empty flatcars for the trucks from other railroads. They are being sent primarily from the South Urals, West Siberian, Central Asian, Alma-Ata, West Kazakhstan, Gorkiy, and Sverdlovsk Railroads. It is necessary that the managers of these main lines have a highly responsible attitude in treating this important task.

The season for harvesting sugar beets has yet another characteristic: the continuous processing of the beet roots is directly dependent on the timely shipping out of sugar. The experience of the last few years has indicated that on many railroads this has not been accorded the attention required, and, as a result, certain sugar mills have delayed the processing of sugar beets because of an excess of the finished product. Not even mentioning the fact that sometimes sugar has had to be stored in outdoor areas.

The plan for shipping out sugar has still not been fulfilled. The on-time delivery of cars has not been guaranteed to the mills by the Southwestern, Lvov, Southern, Southeastern Railroads. Moreover, during the last two days the requisitions have sharply increased and exceed the plan for the network by 150 cars a day. They have risen significantly for such main lines as the Southwestern (up to 300 cars as compared to a planned 260), the Transcaucasian (70 as compared to a planned 48), and the Southeastern.

The Ministry has adopted measures to supplement the pool of boxcars in this zone. But the railroads themselves have considerable resources at their disposal to successfully solve this problem and not to create difficulties at the enterprises of the sugar industry.

Potato Crop

Moscow GUDOK in Russian 14 Oct 80 p 1

[Text] The principal mass of potatoes has already been sent to its long-term storage points. Hence, in the last few days their submittal for transport has decreased somewhat. If, during the first 10-day period of October, the average daily loading reached 5,000 cars, requisitions have now greatly diminished and comprise 1,900 cars. At such an approximate amount of rolling stock to be delivered the actual loading is being carried out in amounts ranging from 1,100 to 1,200 cars. As before, shipment of these tubers is proceeding intensively on the Belorussian Railroad--345 cars a day, Gorkiy--220, Kuybyshev--100. It is continuing on the South Urals, West Siberian, Sverdlovsk, Krasnoyarsk, and certain other railroads.

However, despite the decrease in the volumes of transporting this category of agricultural produce, the situation with regard to hauling it must, as before, remain in the center of attention of railroad workers. No slackening must be allowed in carrying out these tasks until the last ton of produce is delivered to its destination.

We must also take into consideration a certain characteristic of the present hauls. This consists of the fact that now most potatoes are delivered to the country's major industrial centers from quite distant regions. Thus, in considerable contrast to previous years, the route of the hauls has been lengthened, and it must be made during days of bad weather with possible frosts. And so, the railroad workers have to hurry.

Furthermore, certain difficulties have arisen in moving car flows in the country's eastern portion. This pertains particularly to the East Siberian and Transbaykal Main Lines. The piling up of a surplus pool at the junction points in Mariinsk, Tayshet, Petrovskiy Zavod, and Arkhar has slowed down the throughput of trains. At a number of sections there are even trains which have been left without locomotives. And, of course, among the number of cars delayed are some with vegetables and potatoes. It is the duty of the railroad workers in the country's eastern region to "raise" the priority of rolling stock with such freight immediately and to move it ahead of all other trains, with the exception of passenger trains.

Also of particular importance is the on-schedule unloading of cars with vegetables and potatoes. But in this regard not everything is yet as it should be. There are great losses here. Thus, during the 24-hour period of 9 October, out of the 3,300 cars with vegetables which were delivered to the country's various centers and warehouses only 2,000 were unloaded, while out of 3,700 cars with potatoes the number unloaded was even less--1,900. Moreover, a good half of this highly perishable produce remained on the tracks during the following 24-hour period as well, since a new batch of this freight was approaching.

There are large remaining batches of vegetables now on the Far Eastern Railroad. In some places they approach 1,000 cars, including 600 with potatoes. Meanwhile, the average daily unloading there still does not exceed 300 cars, including 160 of potatoes. On the Alma-Ata Railroad, out of 413 cars with potatoes only 120 were freed up, while on the Central Asian Railroad not even half of the rolling stock sent to the centers was freed up.

A large number of cars with vegetables and potatoes especially have piled up at the Leningrad and Moscow terminals. More than 2,000 cars a day remain here for unloading, and of these more than 1,000 are with potatoes. The freeing them up by emptying does not exceed a total of 500 cars. Railroad workers must exert a more active influence on the consignees who are hindering the unloading process.

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CSO: 1829

AMUR RIVER NAVIGATION DRAWING TO A CLOSE

SK100300 Vladivostok Maritime Service in Russian to the Pacific Far East 0815 GMT 5 Nov 80

[Excerpts] The Amur River navigation season is drawing to a close. The (Chudinskiy) and Blagoveshchensk regional administrations have docked their entire fleet for winter repairs. The last of the cargo is now being transported along the middle and lower Amur River, and this activity has almost been completed. Most crews and vessels have functioned well during the season. Preliminary results indicate that more than 120 vessels have fulfilled the 5-year plan.

We have at our microphone (Vladimir Andreyevich Kolesnikov), deputy chief of the Amurskiy steamship line:

[Begins (Kolesnikov) recording] The 5-year plan was fulfilled because of the ongoing socialist competition which takes various forms during the navigation season. Competitions between individual crews, between crews and teams working at the ports, between groups of ST-500 and RT-800 vessels of the Dalnerechensk and Khabarovsk ship repair plants. These vessels transport agricultural produce and pit coal for power stations in the Khabarovskiy Kray. It was only during the recent navigational season that the Amur River fleet acquired a powerful, 2,000-horse-power river tug boat, six vessels of the Reka-more type for export and import transportation, 6 Moskva type passenger vessels and other types of vessels and transportation technology.

Although the Amur River navigation season is drawing to a close, the Amur River navigators are not halting all operations. Since 1974 they have been involved in long distance transportation of timber in vessels of the Reka-more type along the international route from Nakhodka to Japanese ports. This year four such vessels have been prepared for winter operations. [end recording]

CSO: 1829

NEW STATION FOR SHIP REGULATION BEGUN AT ODESSA PORT

Kiev RABOCHAYA GAZETA in Russian 1 Nov 80 p. 4

[From article by A. Volchek entitled:"Maritime Regulator"]

[Excerpt] Here on the [Karantinyy] pier, workers of the No. 2 floating construction detachment of Chernomorgidrostroy [The Black Sea Hydrotechnical Construction Trust] have begun building a station for regulating ship movements,the plans for which were developed by ChernomorNIIproyekt [The Black Sea Scientific Research Institute for Planning]. From an architectural viewpoint, the station has no precedents.

All basic services are arranged in a two-story conning tower,made in the form of a truncated cylinder, with a circular field of view. The tower is grasped, so to speak, on two sides by massive vertical columns and suspended at a height of 36 meters. The height of the whole tower with masts is 56 meters. Thus, the station will be easily visible from the port area, the sea, and all coastal zones.

The existing shore service providing for safe movement of ships does not meet modern requirements. In addition, the station has a limited radius of action and, for servicing the whole north-west part of the Black Sea, where the intensity of ship movements is growing with every year, several points which could make up a system of regulating stations already are needed.

The coastal radar stations of the ports of Il'ichevsk and Yuzhnyy will be a part of the system. The Odessa station will function as the center of operations. All information will be centralized in it, and data received will be processed by electronic computing machines. Having before him a clear map of all zones, the controller will regulate the movement of each ship and issue the necessary recommendations.

Control post personnel have available the most modern radar equipment and also various other supplementary technical means for documentation, for continuous photographing of the image on the illuminated track diagram, magnetic recorders and apparatus for night vision. For communicating with ships, 14 ultra high frequency radio stations will be used. A special compartment is set aside for a hydrometeorological station.

When the new station goes into service, the smoothness of port operations in the area will be raised. The idle time of ships both at piers and in the outside roadstead will be reduced. It will be possible to guide conduct of ships in practically any weather. Economists have calculated that all expenses connected with the construction, installation and purchase of equipment for the station will have paid for themselves in 8 months.

9136
CSO: 1829

OCEAN AND RIVER

PORT CHIEF DISCUSSES ODESSA PORT'S PROBLEMS

Kiev RABOCHAYA GAZETA in Russian 3 Sep 80 p 1

[Interview with Odessa port chief, Valentin Ivanovich Zolotarev, in Odessa by A. Mezhikovskiy]

> The Odessa merchant marine port is undergoing a complex period of renovation. A major overhaul is being carried out here on the engineering condition of the machinery, a change in the structure of the management zones has been made in the freight-handling areas, obsolete wharves are being modernized, and changes are planned for the railroad network.
>
> We conducted the following interview with port chief, Valentin Ivanovich Zolotarev, on the prospects and problems of the country's oldest transport terminal.

[Excerpts] [Question] Valentin Ivanovich, what are this port's principal problems?

[Answer] Primarily, it's a matter of the poor technical condition of the hoisting and conveying equipment, warehouses, and certain hydraulic engineering facilities, as well as an insufficient development of the railroad and track system. These conclusions were made by specialists, who also conducted a complete inspection of the port.

For example, we have about 90 portal cranes. It is time to write off approximately one sixth of them.

We have outlined and are carrying out a program of technical re-tooling: some of the cranes are being transferred to less important sectors, and we are preparing positions for new, highly productive machines: two "albatrosses," along with "condor" and "falcon" type cranes. And we are also hoping to obtain about 50 Toyota-type loaders this year, machines which have been highly recommended.

/Question/ And how is the problem of modernizing the Karantin Pier being solved?

/Answer/ It has already been started. The necessary funds have been allocated, and the deadline has been set for the end of 1982. But we are striving, and the group of the Chernomorgidrostroy Trust is supporting us in this, to provide new life for the 100-year-old Karantin Pier a year ahead of the planned deadline. When this modernization has been completed, the steamship line will receive, perhaps, the best wharf on the Black Sea.

/Question/ Every day there are an average of 26 ships in this port, and 13--15 of them are awaiting processing. That means that there are not enough wharves. But there is practically nowhere to "take" them.

/Answer/ That is correct. But practical experience has shown the following: no matter how many ports are built, there are always too few of them. The fleet and the cargo turnover are growing considerably faster. There is only one solution: utilize the reserves. That is, constantly increase the turnover capacity of the warehouses and the traffic capacity of the wharves. We are conducting a wharf system in the proper technical condition. But the Odessa-Port Station should also not stand on the sidelines. Let's be frank: this port's railroad system is almost in critical condition. Furthermore, its area is also being used for operations concerned with making up and unmaking trains. I consider that at least half of these operations should be carried out beyond the port's area.

/Question/ This year the port's directors abrogated the traditional districting and structure of the port. What brought this about?

/Answer/ An attempt with minimal outlays to improve and facilitate the work, to curtail the time required by ships to stand in the roadstead, and to lessen their accumulation. The following districts remain as such: three loading and unloading districts and the petroleum harbor. Only the zone subordinate to them together with their wharves has been changed. There are no longer any autonomous wharves to the Grain Harbor and the sugar complex.

2354
CSO: 1829

OCEAN AND RIVER

SPECIFICATIONS FOR FINNISH-BUILT MULTI-PURPOSE ICEBREAKERS

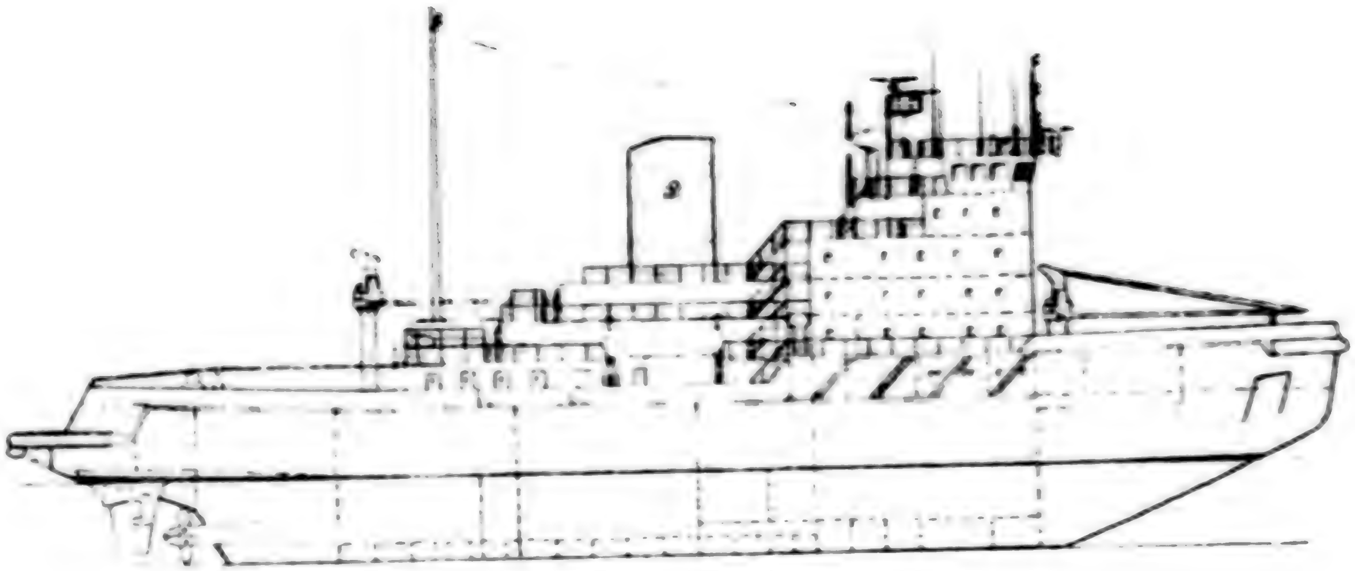
Moscow MORSKOY FLOT in Russian No 9, Sep 80 pp 40-41

[Article by A. Peschanskiy, chief engineer of the Administration for Ordering and Supervising the Construction of the Fleet of the Ministry of the Maritime Fleet.]

[Text] In the period from 1978 to 1980, the journal MORSKOY FLOT conducted a discussion about the engine and propulsive system of icebreakers. In the articles, the disadvantages of an installation with a VRSh [controllable pitch propeller] were indicated as well as its substantial advantages. Ships with VRSh have constantly rotating propellers and shafting which is an important quality increasing the reliability of their operation. In addition, the VRSh and the bearings of the shafting, especially the tail shaft bearings, increase the reliability of the operation of the elements of the propulsive complex during periods of maneuvering. For icebreakers operating in severe Arctic conditions, the advantages of diesel-electric power plants from the point of view of propeller torque control, overload capacity, survivability, reliability, and economy at partial loadings were substantiated. An evaluation was giver of prospects for the development of a GEU [Gas Turbine-Electric Installation] and also for the creation of an alternating current diesel-electric plant. A comparison of the economic indicators of the different types of power plants was made.

On the basis of the available materials, theoretical investigations, and experience in the operation of ships for navigating in ice with controllable pitch propellers, a conclusion was reached about the advisability of using controllable pitch propellers on 7000 kilowatt icebreakers for use in the approaches to ports in freezing non-arctic seas.

The result of the discussion is summed up by the Administration for Ordering and Supervising the Construction of the Fleet — they will accept a multi-purpose icebreaker with controllable pitch propellers, the specifications for which are presented below.



General View of Icebreaker

In Finland at the Wartsila shipyard, three multi-purpose, 7000 kilowatt icebreakers will be built for our country. The first ship will be delivered in November 1982, and the remaining two, in May and June of 1983. The icebreakers are intended for assisting ships in the approaches to ports in freezing non-arctic seas, for use as auxiliary icebreakers operating in the Arctic during summer months, for carrying out salvage operations in ice conditions, and for towing ships and floating equipment in clear water.

The ships will be constructed to the USSR Register of Shipping classification KM * /1/ 1 A2, icebreaker.

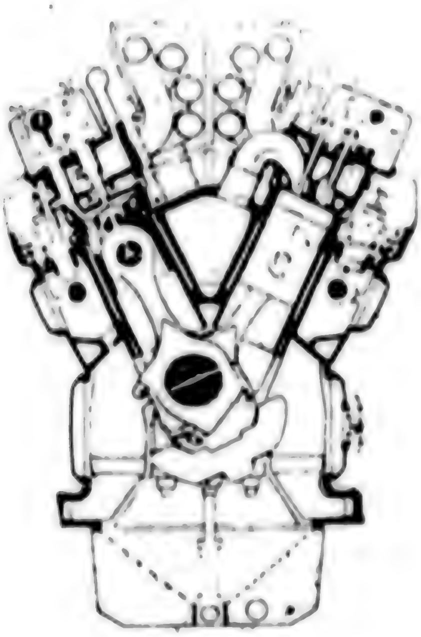
The stability of the ship meets the requirements of the USSR Register of Shipping for ships with an unlimited region of navigation. The hull is being constructed according to a longitudinal system of framing with shipbuilding steel of increased strength. Longitudinally, the hull is divided by six transverse bulkheads into watertight compartments.

Principal Characteristics

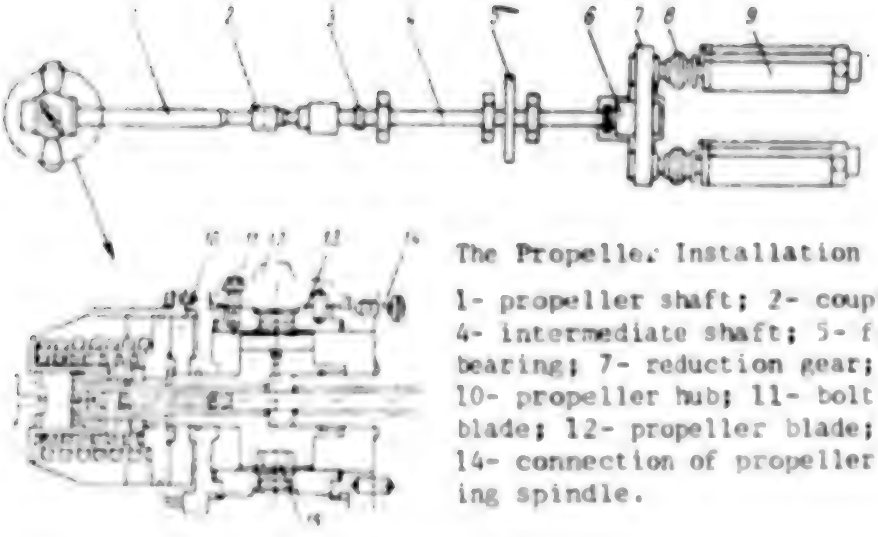
Length overall	86.4 meters
" on KVL [designed waterline]	78.5 "
Beam overall	20.8 "
" on KVL	20.0 "
Draft, maximum	6.5 "
" on KVL	6.0 "
Height of side (to upper deck)	10.5 "
Continuous power on shafts during operation in: clear water	9100 kilowatts
in: ice	7000 "
Maximum short-term power during operation in ice	9100 kilowatts
Speed	16.5 knots

New engineering solutions are being used in the design of the icebreaker. For the first time on icebreakers of this class and intended use, a power plant is being provided that consists of medium speed diesels turning a controllable pitch propeller through a flexible coupling and a reduction gear. The twin screw machinery installation is made up of four Wartsila Vaasa type 8R32 diesels. This is a non-reversing, eight cylinder, single-action, four-cycle engine developed for operation on heavy fuel. The purpose of the design was to create an engine capable of satisfying modern requirements of reliability, convenience of servicing, and reduced operating costs including fuel costs. The preference for reliability and an increased service life was obtained with an attainment of moderate indicators in the loading ratio of the engine.

The engine went through prolonged tests with a 20% overload while operating on the lowest quality of the fuels on which it was intended to operate. Fuel consumption at maximum power was 207 grams per kilowatt, and lubricating oil consumption was 1.2 grams per kilowatt.



The Wartsila Vaasa U 32 Engine



The Propeller Installation

1- propeller shaft; 2- coupling; 3- safety clutch; 4- intermediate shaft; 5- flywheel; 6- thrust bearing; 7- reduction gear; 8- clutch; 9- diesel; 10- propeller hub; 11- bolt securing propeller blade; 12- propeller blade; 13- bearing ring; 14- connection of propeller to shaft; 15- turning spindle.

The principle of the regulation of the main engine and controllable pitch propeller system in ice breaking conditions, takes into account the severe ice conditions and utilizes the qualities of the propulsion plant most efficiently. The automatic changing of the pitch of the propellers and the supercharging of the main engines depending on the braking action of the ice on the propellers, assure sustaining the maximum possible thrust and, in the majority of cases, prevent jamming of the propellers. When necessary, supplementary hydraulic pumps are connected to increase the speed of changing the pitch of the propellers. In severe ice conditions, the engines develop the greatest power and seek to sustain a constant speed of rotation. In case of jamming a propeller in ice, it can be freed by using the control for the drive mechanism for ahead and astern pitch changes, or by a shaft turning machine built into the reduction gear.

For freeing the ship from ice ridges, the maximum power can be applied for going astern. The ice qualities of the machinery installation and the strength characteristics of its subassemblies guarantee reliable operation of the whole plant when navigating the ship in ice in the specified conditions and regions.

A special device distributes the loads on the diesels, switching loads to one shaft or the other.

The reduction gears have a single stage. The bearings of the reduction gear are made of babbitt and have circulating lubrication. There are built-in mechanical lubricating pumps. In addition, each reduction gear has its own electrically driven emergency circulating pump.

The four-bladed controllable pitch propeller is manufactured from stainless steel. The pitch control mechanism is installed in the intermediate shaft. When operating in ice, the propellers rotate at constant speed. Pitch control can be accomplished either from the pilot house or the TsPU [Central Control Post]. Propeller blades can be replaced under water. The necessary equipment and tools for this are being provided.

Three Wartsila Vaasa type 624 TS auxiliary diesel engines are installed on the ice breaker, each connected directly to its own alternating current generator. There are also two vertical auxiliary steam boilers. The ship has a single bottom and single sided ice-separating sea chests with a compartment from which an air venting tube is led out onto the open deck. The removable ice strainer gratings of the sea chests are made of hot dipped galvanized steel. The gratings are secured by stainless steel bolts.

The ice breaker has a waste water and sewage treatment system, a bilge water separator, and a furnace for burning petroleum and solid wastes.

Two electromechanical anchor and mooring capstans with three-speed electric drives are installed on the bow. Both anchors can be dropped by remote control from the pilot house.

On the after part of the upper deck there is a three-speed electromechanical capstan with a pulling force of 50 kilonewtons [about 5100 kilograms] and a towing winch composed of a separate assembly of friction-pulling wheels and a take-up drum.

The icebreaker has two semibalanced rudders controlled by an R-16 electrohydraulic steering engine with a turning moment of 250 kilonewton meters [about 25500 kilogram meters]. The use of two rudders in the planes of the axes of the propeller shafts instead of a single rudder on the centerline as has been the custom on icebreakers up to now, substantially improves the maneuvering qualities.

The ship is supplied with two, 55 person, enclosed, fiberglass motor life boats and four life rafts.

To reduce the resistance of the hull during operation in ice, the icebreaker is provided with the Wartsila pneumatic washing system. The underwater part of the hull will be coated with an ice resisting paint which reduces the friction of the shell to ice by 30% and fuel consumption by 10-13%. In addition it reduces the icing over of the hull and the formation of ice lumps

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OCEAN AND RIVER

SPARES SHORTAGE SLOWING GRAIN SHIPMENTS AT NOVOROSSIYSK PORT

Moscow PRAVDA in Russian 4 Nov 80 p 1

[V. Logvinov report: "Masters of the Berths"]

> [Text] Krasnodarskiy Kray--Port of Novorossiysk.... Ships flying the flags of Argentina, Australia, the Netherlands, India --from all parts of the world--can be seen here alongside Soviet motorships. The belts of the conveyors rustle, the battery-operated trucks scurry along and the long snouts of the cranes deliver goods packages from the holds. Work does not abate for one minute in the port of Novorossiysk--one of the country's biggest in freight turnover. It "digests" 35 million tons of cargo a year. In 10 months of this year the dockers have handled 500,000 tons of freight more than the amount stipulated by the plan.

Successes have been scored in the course of the widespread socialist competition for a worthy greeting of the 26th party congress. New production resources have been commissioned, and progressive forms of labor organization are being introduced. One of these is the creation of consolidated financially autonomous comprehensive brigades.

The previous small brigades with a narrow work specialization curbed labor productivity growth: after all, it was frequently the brigades' fate to work on a par not with the strong ones but with those which were lagging behind. This is why the port administration readily agreed to the creation of consolidated brigades performing an entire complex of operations.

One such is the brigade of N. Nozhkin, winner of the Lenin Komsomol Prize. In August this dockers' collective concluded a contract with the port's eastern area to perform handling operations on cost accounting terms. Both parties adopted specific pledges whose fulfillment will insure continuous operation. The brigade undertook, among other things, to reduce the ships' anchorage during loading operations, to fulfill the shift quotas by no less than 110 percent and to operate transshipment equipment at full performance. The administration, in turn, providing the brigade with the necessary materials and mechanisms, is creating the conditions for the introduction of progressive technology and the scientific organization of labor and notifies the collective of work plans in good time. Mutual responsibility for the timely fulfillment of quotas has increased.

The results are very impressive. N. Nozhkin's brigade achieved the highest indicators among the dockers' collectives. Productivity has grown appreciably, and the work factor in the course of a work day has increased from 70 to 92 percent. Better use is made of equipment and means of transportation, and the labor-intensiveness of the operations has been reduced. All this has enabled the dockers to adopt upgraded pledges: it was resolved to have handled hundreds of thousands of tons of freight additional to the plan by the opening day of the 26th party congress.

Good results are also being achieved by the brigades of I. Lobodenko, V. Fal'ko, V. Gopiychenko and N. Chernyy. Cost accounting is helping them find and commission previously concealed production potential and to increase work quality. With regard for the experience of the foremost collectives such indicators as preservation of the freight, reduction to a minimum of damage to the packaging and the maximum use of equipment have been determined. All the dockers undergo instruction and retraining at the port's training center. Machine operators 1st class now work at each materials-handling mechanism. Much has been done to interest the dockers more in increasing quality indicators. Approximately 1,200 freightcars were saved in 9 months.

Many technical innovations may be seen in the port. The question of the unloading and loading of grain has been solved in an interesting manner, for example. Previously the bin was secured in one spot. It has been made mobile and is fed automatically along the railroad track to the car or hold. This improvement alone has made it possible to more than double the speed of the handling of the grain. The packeting of the freight has also come to be applied extensively.

And still the port's collective could work better. The dockers are being let down by the railroad, which systematically fails to supply sufficient cars. Idling is still great because of this. Can it be reduced? The dockers have many suggestions for this. Work would be sharply advanced, for example, if the grain were loaded not into the cars but were stored at the elevator. This problem is not new. Modernization of the grain berth with the installation there of two pneumatic loaders with a productivity of 10,000 tons per day and a gallery for conveying the grain to the elevator and the construction of silage structures with a capacity of 100,000 tons of grain were envisaged long since. But the construction organizations of the USSR Ministry of Procurement have dragged out the installation of these facilities excessively. The "Promzernoproyekt" Institute has not coordinated the planning-estimates documents with the "Chernomorniiproyekt" Institute. And, furthermore, they are being issued in incomplete form and greatly behind schedule.

Many mechanisms are idling owing to a shortage of spares, which are obtained here through "Sel'khoztekhnika" enterprises. The longshoremen consider it more expedient to obtain all the parts, other than auto parts, through the "Mortekhsnab," as was the case earlier.

Unloading the ship in time is only half the matter. It is essential to strip the holds. More time is sometimes spent on this operation than on the unloading itself.

The persistence with which the Novorossiysk dockers raise these unsolved problems merely emphasizes their endeavor to improve the operation of the port and to make fuller use of its potential in order to successfully fulfill the precongress pledges.

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OCEAN AND RIVER

EXPERIMENTAL USE OF LASERS FOR PILOTING SHIPS DESCRIBED

Moscow RECHNOY TRANSPORT in Russian No 8, 1980 pp 45-46

[Article by Candidate of Technical Sciences V. Mikhelev, director of the Leningrad River Port; I. Oleshkevich, deputy port director; V. Safronov, chief engineer; B. Lukashov, pilot: "Through the Neva Bridges--With the Aid of Lasers"]

[Excerpt] During the 1979 navigational period, a laboratorial model of the "Glissada" laser system for piloting ships was established on the Dvortsovyy Bridge and the Volodarskiy Bridge and a number of large-capacity ships of the "Volgo-Don", "Volgo-Balt", "Volgoneft'" and "Baltiyskiy" classes were piloted on an experimental basis.

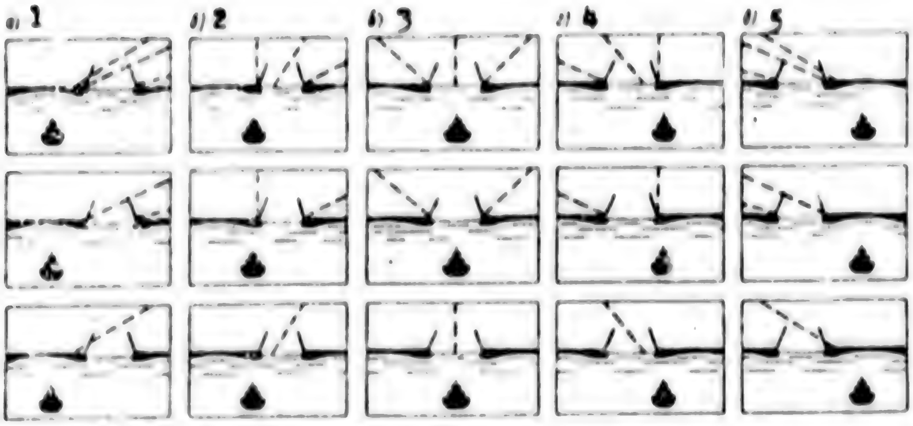
The very first experiments carried out on the Dvortsovyy Bridge showed the reliability and safety of the visual orientation of navigators by laser beams that stand out clearly against the background of bright city lights (Figure 1). The pilots participating in the experimental pilotages sighted the laser beams from a distance of over 2 kilometers (practically from behind the Kirov Bridge).

In regard to navigation conditions, the Dvortsovyy Bridge presents no difficulties and the experiments were transferred to the most difficult section of the Neva fairway, the vicinity of the Volodarskiy Bridge.

Due to the sharp bend of the river--500 to 800 meters from the bridge--it is difficult to steer the ship into the movable span of the Volodarskiy Bridge. Under these conditions, the navigator is not always able to allow for the strong deflecting current acting on the left abutment of the movable span, since the linear guiding line was established at a distance of 1.2 kilometers. Moreover, the lights of the guiding line are partially concealed by the architectural adornments of the bridge.

Considering that frequently the ships arriving in Leningrad from above approach the Volodarskiy Bridge without stopping on the roads, passing at night difficult navigational sections such as the Koshkinskiy Channel, the Ivanovskiy Rapids and the Crooked Bend, one realizes the stress the

Figure 1. View of the Movable Span From the Moving Ship



Key:

1. Outside and to the left of the beam corridor
2. On the left boundary of the beam corridor
3. Precisely on the axis of the movable span and of the beam corridor
4. On the right boundary of the beam corridor
5. Outside and to the right of the beam corridor

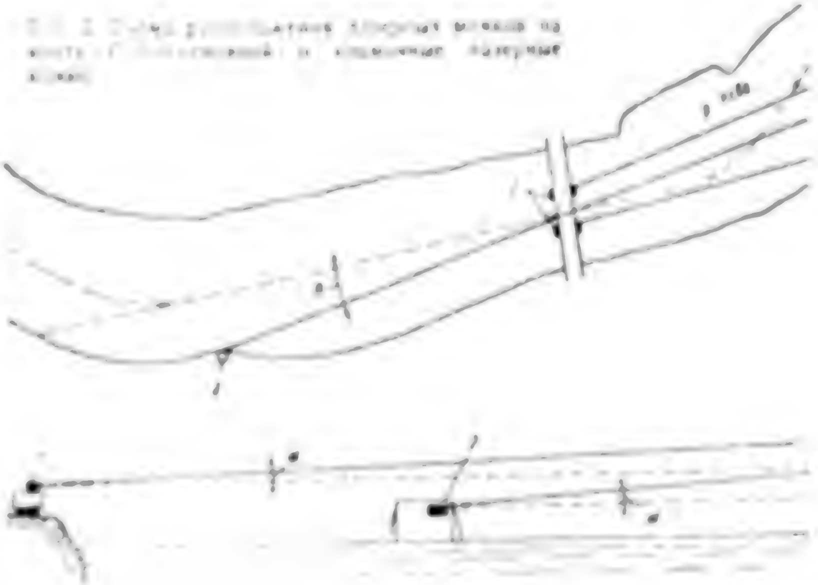
captains experience before the still more difficult section in which the bridges are located. Under such conditions, there is a considerable accident risk. In the last 10 years, a number of accidents occurred on account of navigational errors made during the approach to the bridges. The test model of the laser system set up on the Volodarskiy Bridge (Figure 2) was orientated with due regard for the deflecting current shown by Angle β; it consisted of three laser beacons, two of which were installed on the abutments of the movable span, while one was installed on the river bank.

The laser beams--distinctly visible among the many city lights--clearly marked the axis of the movable span and the boundaries of the zone, within which the pilot orientated himself during the approach to the bridge. All of the laser beams were directed so as to meet the advancing ship at a small angle to the horizontal plane (Angle α), in order to rule out the possibility of the pilot facing the beam straight-on.

The laser-aided pilotage of ships draws on the principles of projective geometry and on the effect of the laser radiation's atmospheric scattering, on account of which the pilot sights the combined beams as a three-ray picture, which unequivocally established the ship's position relative to the pilotage axis. The laser beams are sighted as linear indicators; their effective range is in excess of 1,500 meters. The laser system functions like a slotted guiding line.

With the ship correctly positioned on the guidance axis, the pilot spatially perceives the disposition of the beams: The axial beam--strictly vertical, and the two abutment beams--strictly symmetrical relative to the axial beam. If the ship is displaced to the left or right of the guidance axis, the laser beams--changing their alignment--show the pilot the right direction for rectifying the error. Profiting by the laser system, the pilots confidently steered the ship during the approach to the movable bridge span. By the spatial disposition of the laser beams, they visually determined--with speed and confidence--toward which side the ship was displaced relative to the guidance axis. During the testing of the system for laser-aided ship pilotage, experiments were conducted to determine the laser beams' detection range under different meteorological conditions, the sensitivity of the system, the laser beams' sector of coverage, and other aspects.

Figure 2. Diagram of the Laser Beams' Arrangement on the Bridge:
1, 2--the basic and the lateral laser beams



The experimental piloting of barge trains showed the effectiveness of the laser system in regard to directing the pilots--both the pilots of the tugboats and those of the vessels towed. Guided by the system's beams, the pilots accurately and in good time determined their position and they did so at a safe distance and under varying weather conditions. During the 1979 navigational period, 150 ships were piloted. The experiments are being continued during the present navigational period.

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OCEAN AND RIVER

BRIEFS

UP TO THE MINUTE ACCOUNTING -- Odessa -- The container terminal at the Il'ichevsk commercial port has come up to planned capacity ahead of time. This has permitted the staff to accelerate substantially the processing of large-tonnage, specialized seagoing ships. The new complex,qualitatively, has changed the work of hundreds of people. High productivity equipment has come onto the piers. In the cargo processing section, the level of mechanization is now 100%. The Il'ichevites have developed and introduced an automatic system for control of the production processes. Now, at the container terminal, all information on the quantity and character of cargoes arriving at the port, the availability of equipment, free areas and storages is processed by computer. The promptly produced machine information assists the dispatchers and dockers. Everything is taken into account from the number of mechanized production lines occupied in loading or unloading to the time, registered by the minute, of the movement of machines on the itinerary: "side of ship - pier - warehouse." The staff of the port is striving for an ahead of time fulfillment of their obligations which are to process an additional 160 thousand tons of cargoes by the end of the year. [Excerpt] [Moscow IZVESTIYA in Russian 28 Oct 80 p. 2] 9136

THE YUZHNYY COMPLEX -- Odessa oblast -- A new harbor is being constructed on the Black Sea. The Yuzhnyy port complex is being created 25 kilometers from Odessa. The new port on the Black Sea owes its birth to the mineral fertilizer plant near the port of Odessa. Along pipelines laid from the plant to the pier, liquified ammonia is delivered into the tanks of oceangoing ships. The plant is the child of the 10th Five-Year Plan. The port also was born in that Five-Year Plan, but it will gather its strength in the following one. Work has begun on construction of a coal and ore complex. It will process up to 3 million tons of ores and about 2.5 million tons of coal annually. The harbor depth will accomodate 100,000-ton deadweight ships. Beyond these complexes will be areas for processing the most modern container and roll-on-roll-off ships. Their five piers will stretch out one and a half kilometers. Farther on will be areas for general and timber cargoes. There also will be a ship repair plant here. In time, Yuzhnyy will be equal in capacity to the ports of Odessa and Il'ichevsk taken together. There will be 32 piers including 300 thousand square meters of covered storage and a million square meters of open areas for the scientific and salvage and rescue fleets. Longshoremen will be able to process up to 25 million tons of cargoes in one year. [Text] [Moscow IZVESTIYA in Russian 21 Oct 80 p. 1] 9136

BY DEEPER ROUTES -- Cheboksary, 10 Sep 80 -- In the near future a new river fleet will be under construction in the capital of the autonomous republic. It is being built in connection with the construction of the Cheboksary hydraulic power system and the creation of an artificial reservoir. The deepest draft river ships and ships for operation on both rivers and seas will be able to moor here. [Excerpt] [Moscow PRAVDA in Russian 11 Sep 80 p. 2] 9136

PETROLEUM PIER -- Riga -- In the petroleum area of the maritime commercial port of Ventspils, loading and offloading operations for processing tankers are being mechanized and automated. On one of the piers a modern filling and discharging stand already is in operation. Recently an AS-250 filling and discharging stand was installed and tested which is more effective than the previous one here. All metal, with a loading counterbalance, it provides a productivity of 1600 cubic meters per hour. In the development and manufacture of the unit, specialists took into account in particular the proposals and observations of the port workers; for example, those of mechanic V. Tsygank contributing to the perfection of the first automatic installations. The introduction of the new filling and discharging stands on petroleum piers will facilitate the work of longshoremen and accelerate the processing of ships. [Text] [Riga SOVETSKAYA LATVIYA in Russian 3 Sep 80 p. 2] 9136

HUGE TANKER -- The flag has been raised on the 150 thousand ton deadweight supertanker "Sovetskaya Neft'". The tanker is three hundred meters long. This is the sixth giant tanker built by the shipbuilders of the "Zaliv" shipyard at Kerch. [Text] [Moscow EKONOMICHESKAYA GAZETA No. 37 in Russian Sep 80 p. 3] 9136

AND THEN, THE OCEAN -- Leningrad 26 Oct -- At the shipyard imeni A. A. Zhdanov, dock trials have begun on a new oceangoing container ship with horizontal loading, the "Katya Zelenko". It is one of the series of ships awarded the State Mark of Quality. The brigade form of organizing labor, which is widespread at the enterprise, and the use of progressive technology assist the shipbuilders to reduce the on-the-ways construction time of ships and to cope with a growing volume of work with fewer workers. [Text] [Moscow PRAVDA in Russian 27 Oct 80 p. 1] 9136

THE WATCH IN THE OCEAN -- Vladivostok -- Three oceans, seas and straits have been left behind the stern of the fish processing base ship "Aleksei Chuyev". Built by Leningrad shipbuilders and named in honor of their comrade in labor who was twice a Hero of Socialist Labor, the base ship has arrived at its port of registry - Vladivostok. During the voyage from Leningrad, preparations for fishing were developed. The crew of the floating plant is ready to go out on the first operational voyage. Before them is a new goal - to bring the ship up to designed capacity before the opening of the XXVIth Party Congress. [Text] [Moscow IZVESTIYA in Russian 28 Oct 80 p. 1] 9136

VANINO-KHOLMSK FERRY--Work is expanding on the second stage of the Vanino-Kholmsk ferry project. Since its inauguration the ferry crossing has hauled 21 million tons of various cargoes. This year the volume of freight hauled should come to 4 million tons and with commissioning of the second stage this volume will increase by another 1.5 times. [Khabarovsk Domestic Service in Russian 0930 GMT 9 Oct 80 OW]

CSO: 1829

MISCELLANEOUS

UZBEK GAS RECOVERY, PIPELINE DEVELOPMENTS RECOUNTED

Gas Pipeline for GRES

Moscow PRAVDA in Russian 13 Oct 80 p 1

[Article by F. Ovechkin, staff worker of the newspaper PRAVDA VOSTOKA(Shurtan-Syrdar'inskaya GRES gas pipeline): "The Line Is Being Tested"]

> [Text] The first section of the Shurtan-Syrdar'inskaya GRES trunk gas pipeline, which will connect Central Asia's largest gas deposits with Uzbekistan's highest-capacity electric-power station is undergoing operational tests. The decision was made to turn the trunk pipeline over not in December, as the plan calls for, but in October. The slogan, "Twenty-six shock-work weeks for the 26th CPSU Congress," has become the password for the competition participants.

It has been estimated that each day that is won by starting the trunk line up ahead of time will save the state 1½ million rubles. How is that? In the first place, the Syrdar'inskaya GRES will get a reliable source of inexpensive fuel. It will be possible to put not four of its units under full load, as is the case today, but all eight of them. The operating costs for generating electricity will be reduced by more than half. In the second place the powerful upsurge in the electricity peak will enable hundreds of enterprises to greatly increase output of the products produced. In the third place, billions of cubic meters of gas will arrive at Fergana valley cities, where there is not enough of the blue fuel.

We are at the last kilometer of the route. The construction site is located beside the Syrdar'inskaya GRES itself. High-powered pumps hum busily day and night on the shore of the canal, pumping water into the gas-carrying trunk line. The purpose is to achieve in the pipe a steady pressure of 68 atmospheres. This will prove the readiness of the line to receive gas. Chief engineer Yu. Pichuyev of SU-6 [Construction Administration No 6] of Sredazneftegazstroy [Trust for the Construction of Oil and Gas Industry Facilities in the Central Asian Economic Region] is supervising the tests. Pointing to the manometers, he says:

"For two weeks now the pressure has been rising uniformly, without interruption. This is a sign of high quality of the production operations."

It is here, from the last kilometer of the route, that the construction project supervisors begin their daily flyover of the gas pipeline. And so right now we

Mi-8 helicopter, smoothly bouncing upwards, sets its course for Shurtan. Below is a white carpet of cotton grids, yellow squares of tobacco farms, and the spaciousness of grain lands. Nowhere could ditches, trenches or other signs of major earthmoving operations be seen.

Back in the winter, when undertaking trench excavation, Sredazneftegazstroy sent many people and much equipment to the sections that were passing through kolkhoz fields. By April the pipes had been laid, the land had been restored, and the kolkhozes were able to sow their crops on time.

More than 30 specialized administrations took part in installing the gas pipeline. The construction project demonstrated many examples of mutual support of interdependent activities and the motivation of all the collectives for a high final result. For example, Sredazneftegazstroy subunits welded and laid up to 3 km of pipe per day. On finishing installation of their section of the trunk line, they voluntarily undertook to help their neighbor--Bukharagazpromstroy [Trust for the Construction of Gas Industry Facilities in Bukhara]--on a complicated foothills segment of the gas pipeline. As a result, this section of the line also was installed on time.

...After flying along the route, the helicopter landed beside high-powered installations that had been erected by Bukharagazpromstroy and Mubarekgazpromstroy [Trust for the Construction of Gas Industry Facilities of Mubarek] collectives. Gas will be treated there for transporting: scrubbed of condensate, dried and cooled. In the first year, 5.7 billion m^3 of low-sulfur gas will be treated here.

Gas-Recovery Progress

Ashkhabad TURKMENSKAYA ISKRA in Russian 21 Sep 80 p 2

[Article by [illegible], deputy chief of the All-Union Industrial Association Turkmengazprom: "The Drillers' Reserves"]

[Excerpts] During the Tenth Five-Year Plan the collective of Turkmengazprom [All-Union Production Association for the Recovery of Natural Gas] faced the task of sharply increasing the output of gas and of opening up new gas reserves. For this purpose, forces of production workers, scientists, makers of new equipment, and production engineers were required and much was achieved in this area.

Turkmengazprom is now doing prospecting, exploratory and development drilling in 31 areas. This year the drillers went to three new areas to expand geological exploration operations: Eastern Yelany, Yelany and Chartak. The Beshkyzyl gas field was discovered. It will become still another source for increasing recovery of the blue fuel. The Dauletabadskoye field is quite promising. Using its stores, it is planned to bring the level of gas recovery up to 77 billion cubic meters by 1985.

During the past 4½ years 24 new areas have been introduced to prospecting drilling (versus only 17 during the Ninth Five-Year Plan), and about 1 million meters were penetrated (versus less than 900,000 meters during the Ninth Five-Year Plan). Ten gas fields were discovered (versus seven during the preceding five-year plan). During this same time gas reserves grew by almost 300 billion cubic meters. Gas recovery has increased from year to year, exceeding Ninth Five-Year plan indicators by more than 135 billion cubic meters. A reliable raw-materials base for gas-recovery workers has been established.

This was achieved under difficult conditions. The exploratory and development wells are being drilled in areas that are dispersed and far from supply bases, under severe climatic conditions. The fields, as a rule, have been rendered complicated by the presence of scattered argillaceous rocks, thick saliferous sediments, salt aggressiveness, and a substantial content of calcium and magnesium ions in the brine water that cause difficulties in sinking wells to the planned depth.

Prospecting drilling is now being conducted at great depths--from 4,200 to 4,700 meters. While in 1977 there was not one such well in the association, in the following year more than 29 percent of the year's exploratory meterage was drilled at the indicated depths, in 1979--58 percent.

The success of the stalwart collectives was helped by the wide introduction of new equipment and of advanced technology. Through this factor alone more than 1½ million rubles of state funds were saved last year, and 800,000 rubles have been saved since the start of this year.

But still the pace of penetration for the association as a whole did not reach the planned level. In order to set matters right, measures for intensifying drilling work and for reducing idle time and the accident rate at the holes have been developed. Many problems have now been solved. For example, the increase in depths and the correspondingly increased bottom hole temperatures, formation pressures and high mineralization of the water make special demands on the drilling muds. The reactants previously supplied did not provide the desired qualitative indicators for drilling solutions. Therefore, the use of a mud whose formula was developed by one of Moscow's institutes and that possesses high thermal stability, even under polymineral aggression, began. The formula for the drilling mud, which is stable in the presence of heat and salt, has been successfully introduced at 10 wells. The economic benefit was 80,200 rubles, and complications in the drilling process--sloughs and cavings--were greatly reduced. Also, in 1979, for the first time in the country, we tested the highly effective KMTs-700 reactant, and its industrial mastery has been included in the plan for introducing new technology during 1981.

This year testing began of the reactant-thinner igetan, which enables reduction in the consumption of the basic KMTs reactant--a water-loss reducer--in muds that are weakly or moderately mineralized. It has already been used at three wells. The introduction of high-strength drill string and of casing with high strength and highly sealed joints continues. As a result, the number of accidents and damage to the drilling tool have been sharply reduced, and quality of the casing of the gas wells has been raised. Drilling enterprises have begun to be equipped with highly effective bits. In 1979 alone more than 90,000 meters of penetration had been drilled with them. Increased attention is being paid to cleaning the drilling mud. Mutual checking brigades have been established within production associations to monitor this.

All the innovations that were mentioned above have become an important reserve for raising production effectiveness and work quality. Since the start of the concluding year of the five-year plan, 14 development wells have been transferred to gas-recovery enterprises and their entry into operation is pending. This year the

Beurdeshikskoye gas field will also go into operation. With a view to strengthening work on sampling explored wells, the sampling office has been transferred to Chardzhou and subordinated to Turkmensevburgaz [Association for Drilling Gas Wells in North Turkmenia].

But there are still many conditions that slow up forward motion. Motor vehicles and tractor equipment still are not being used effectively enough, although the fleet is large: almost 1,600 motor vehicles of various makes and 705 units of tractor equipment. However, a substantial portion of the transport stands idle each day. And this is understandable: the lack of roads and increased workload rapidly cause units and components to break down. And the matter of their restoration is considered unimportant. Goskomsel'khoztekhnika [State Committee of the USSR for Providing Agriculture with Production Equipment] bases supply the repairmen poorly with spare parts. In comparison with last year, the supplying of transport enterprises has even worsened. Arrangements for the centralized repair of motor vehicles and tractor equipment at the republic's plants is not turning out well.

Each year the ceiling on use of common-carrier buses is not being satisfied. In 1979, for example, orders were submitted for 339,800 automatic meters, but Turkmen SSR Gosplan allocated only 176,600 automatic meters, and only half that number for 1980. But buses are needed to transport shiftworkers.

Despite the ever-increasing amounts of drilling and the requirements for chemical reactants, the question of fully satisfying the needs of enterprises for modified starch still has not been solved. The amount allocated by the Turkmen regional administration meets the requirement for it by just one-third. Repeated appeals to the territorial administration, Soyuzpishchepromsyr'ye [All-Union Association for Supplying Food and Industrial Raw Materials], has not produced positive results. Each year the drillers experience difficulty because of the lack of V-shaped belts, especially of the large sizes, which are supplied by Turkmenkhimsnabsbyt [Turkmen Administration for the Supply and Marketing of Chemical Products].

There is also a personnel problem. The detachment of production leaders is being augmented with young specialists slowly: 92 engineer and technician positions are vacant right now at drilling enterprises.

The country is expecting from Turkmenia's gas recovery workers a still greater contribution to the creation of a fuel and energy complex. During the Eleventh Five-Year Plan 20 new areas are to be opened up to prospecting, and 600,000 meters of exploratory hole and 80,000 meters of development wells are to be drilled.

In order to reach the contemplated goals, the penetrators of underground arterials must work hard. It is also necessary to improve drilling operations technology and work organization and to introduce scientific and technical achievements. Supplying and other organizations should satisfy more completely the needs of the drillers and gas-recovery workers. It is necessary to prevent worktime losses and idle machinery time caused by various organizational mix-ups. Right now the association's collective is aiming its efforts at completing the Tenth Five-Year Plan properly and at preparing a firm base for successful work in the coming years.

Pipeline Protection Measures

Ashkhabad TURKMENSKAYA ISKRA in Russian 20 Sep 80 p 3

[Article by Shatlykgazdobycha and Turkmentorgreklama (Turkmen Administration for Commercial Claims) Production Associations: "Pay Attention to the Gas Pipe Trunkline!"]

[Text] The Shatlyk Line-Operations Administration for Gas Trunk Pipelines of PO Shatlykgazdobycha [Production Association for Gas Recovery at the Shatlyk Gas Field] notifies all construction organization and institution supervisors, kolkhoz chairmen and sovkhoz directors on whose land sections the high-pressure (55 atmospheres) Mayskoye-Ashkhabad-Bezmein trunk gas pipeline will pass that the gas that is being transported will present an explosion and fire hazard. Any mechanical damage to the pipeline can cause a rupture of the pipeline and be accompanied by an explosion and outbreak of fire, which can lead to casualties.

In order to prevent damage to the trunk gas pipeline, it must be known that a protective zone of 150 meters on both sides of the gas pipeline has been established.

Procedure for Doing Work in the Protective Zone

For purposes of reliable and safe operation of the gas pipeline, the Shatlyk Line-Operations Administration for Trunk Gas Pipelines has developed instructions on safety measures for doing agricultural work and proposes it for decision of the rayon or city ispolkom of the soviet of people's deputies:

reinforced-concrete kilometer posts with warning signs have been established in order to indicate the route of the gas pipeline; and

the lands that comprise the protective zone remain in the possession of the land users and can be used by them for agricultural requirements.

It is prohibited, within the protected zone:

to erect buildings or structures;

to conduct any kind of construction, erection, earthmoving, blasthole drilling or mining operations;

to set up field housing for equipment operators during agricultural operations;

to construct firing ranges or storage for various construction, fuel-and-lubricant or other materials;

to site enclosures for cattle, field mills or transport equipment or to allow people to congregate;

to erect housing structures of any type on sections set aside for individual or collective planting of gardens;

to drive across the gas pipeline at any places other than those designated as passages;

to light bonfires or to burn dry grass; and

to establish at gas pipeline crossings artificial water obstacles, to drop anchors, to build berths or beaches, to set aside fishing sections, or to conduct deepening or dredging operations.

Written permission of the Shatlyk Line-Operations Administration for Trunk Gas Pipelines is required for the conduct of all types of construction work in the protective zone and the strip set aside for the pipeline (the laying of irrigation ditches, trenches, cable and pipelines and other types of earthmoving work).

Work within the strip that has been set aside should be done only in the presence of ShLPUMG [Shatlyk Line-Operations Administration for Trunk Gas Pipelines] representatives.

Persons who permit violation of the rules for doing work within the gas pipelines' protective zone and strip will be called to account under the law.

Comrade superintendents, foremen, operators of excavators, bulldozers and heavy equipment and supervisors of transport brigades, kolkhozes and sovkhozes! Do not forget that it is prohibited to conduct earthmoving operations by mechanized methods within the protective zone of a trunk gas pipeline, since this can lead to damage to the underground gas pipelines!

Underground gas pipelines are indicated locally by /kilometer posts [printed in boldface]/.

REMEMBER that during the period of operation of the gas pipeline since 1969, its depth of burial has been decreased after agricultural work, and at present it is 0.8-1.5 meters from the designed ground surface!

In case gas emission to the earth's surface is observed on the gas pipeline route /report this immediately [printed in boldface]/ to the Shatlyk Line-Operations Administration for Trunk Gas Pipelines of the Shatlykgazdobycha Association.

Drivers of Earthmoving Equipment!

Require of foremen, superintendents and brigade leaders written authorization of the enterprise that operates the gas pipeline for the conduct of earthmoving operations, and pay attention to the warning signs and markers that identify the trunk gas pipeline route.

For all questions related to the conduct of earthmoving work, call the Shatlyk Line-Operations Administration for Trunk Gas Pipelines (ShLPUMG) as follows: Sakar-Chaginskiy Rayon, Shatlyk Settlement, ShLPUMG, telephones Nos 3-61 and 3-69; No 52-82 in the city of Mary; and Nos 5-51-81 and 5-59-64 (the controller) in the city of Ashkhabad.

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December 12, 1980

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